

(12) UK Patent Application (19) GB (11) 2 322 669 (13) A

(43) Date of A Publication 02.09.1998

(21) Application No 9702428.5

(22) Date of Filing 06.02.1997

(71) Applicant(s)
Thomas Gerard Grant
7a Atticall Road, KILKEEL, Co.Down, BT34 4SY,
United Kingdom

(72) Inventor(s)
Thomas Gerard Grant

(74) Agent and/or Address for Service
Thomas Gerard Grant
7a Atticall Road, KILKEEL, Co.Down, BT34 4SY,
United Kingdom

(51) INT CL⁶
E05F 13/04

(52) UK CL (Edition P)
E2M M11F2 M12BX M12C2 M16

(56) Documents Cited
GB 2173252 A GB 2165582 A GB 0530189 A
WO 94/13916 A US 4115954 A

(58) Field of Search
UK CL (Edition P) E2M
INT CL⁶ E05F

(54) Abstract Title
Gate opening device

(57) A flexible container 1 which contains a fluid and normally being laid flat on the ground, upon compression of this container by a vehicle wheel the fluid is forced along piping 3 through valve 7 and through piping 4. The pressure exerted on this fluid is then used to operate actuator 2 which in this case can be used to open gates.

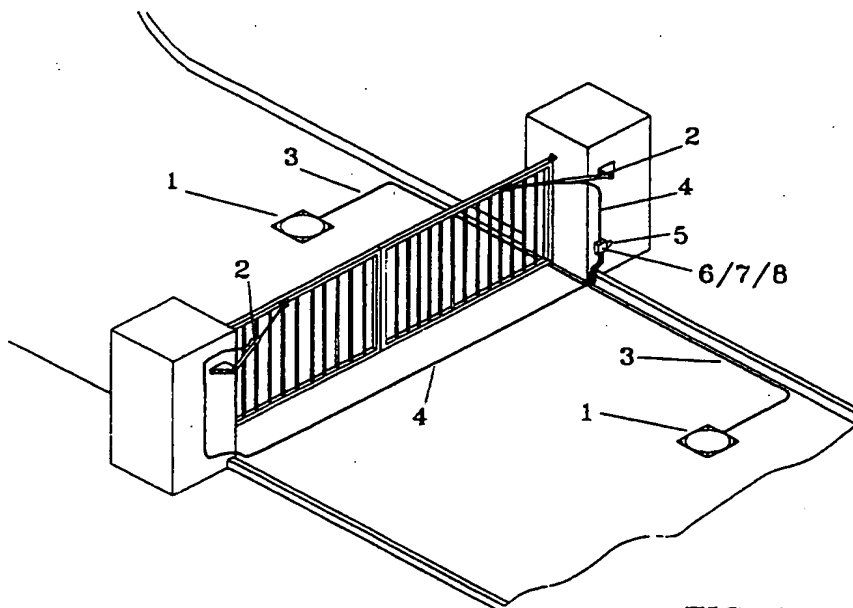


FIG 1

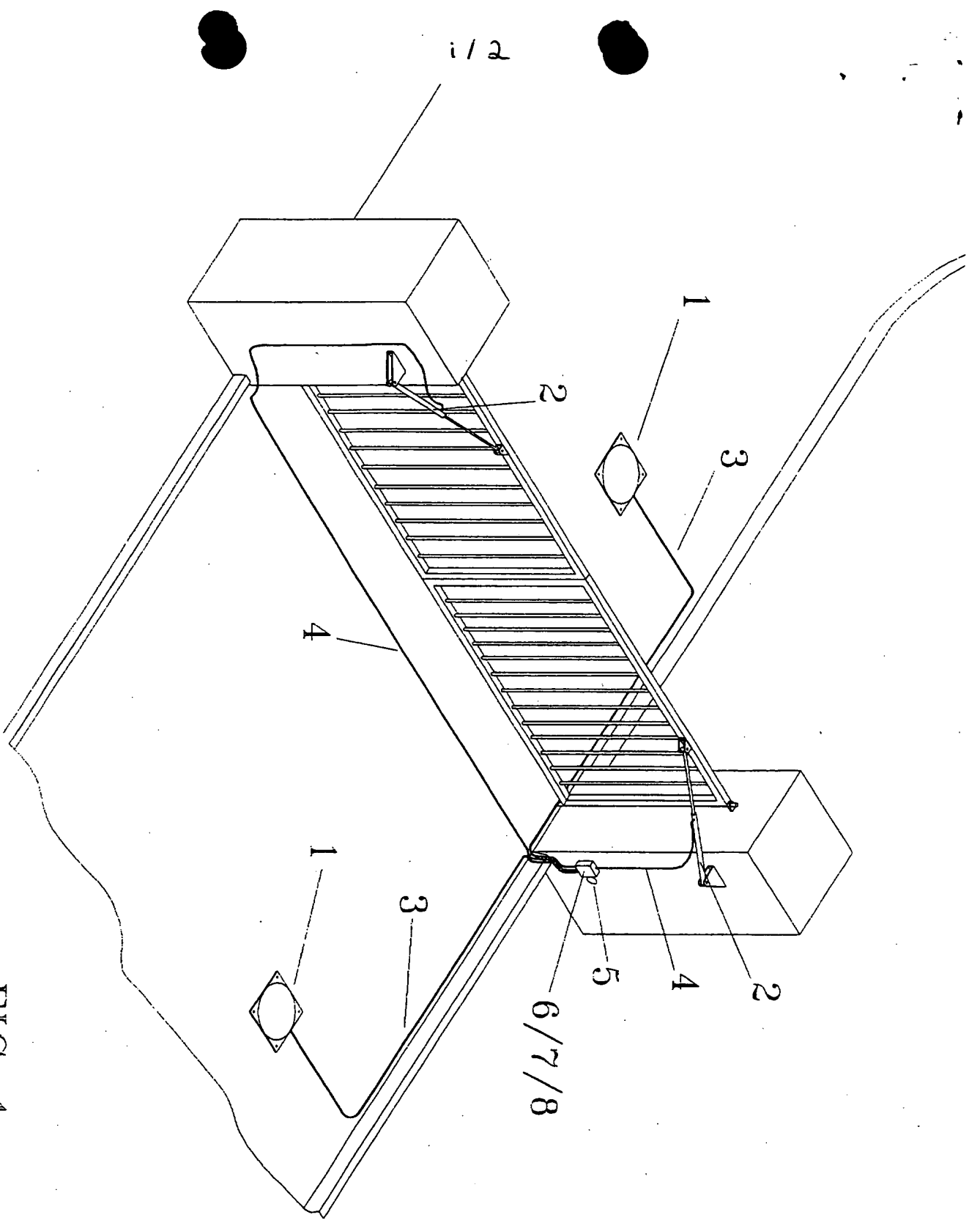


FIG 1

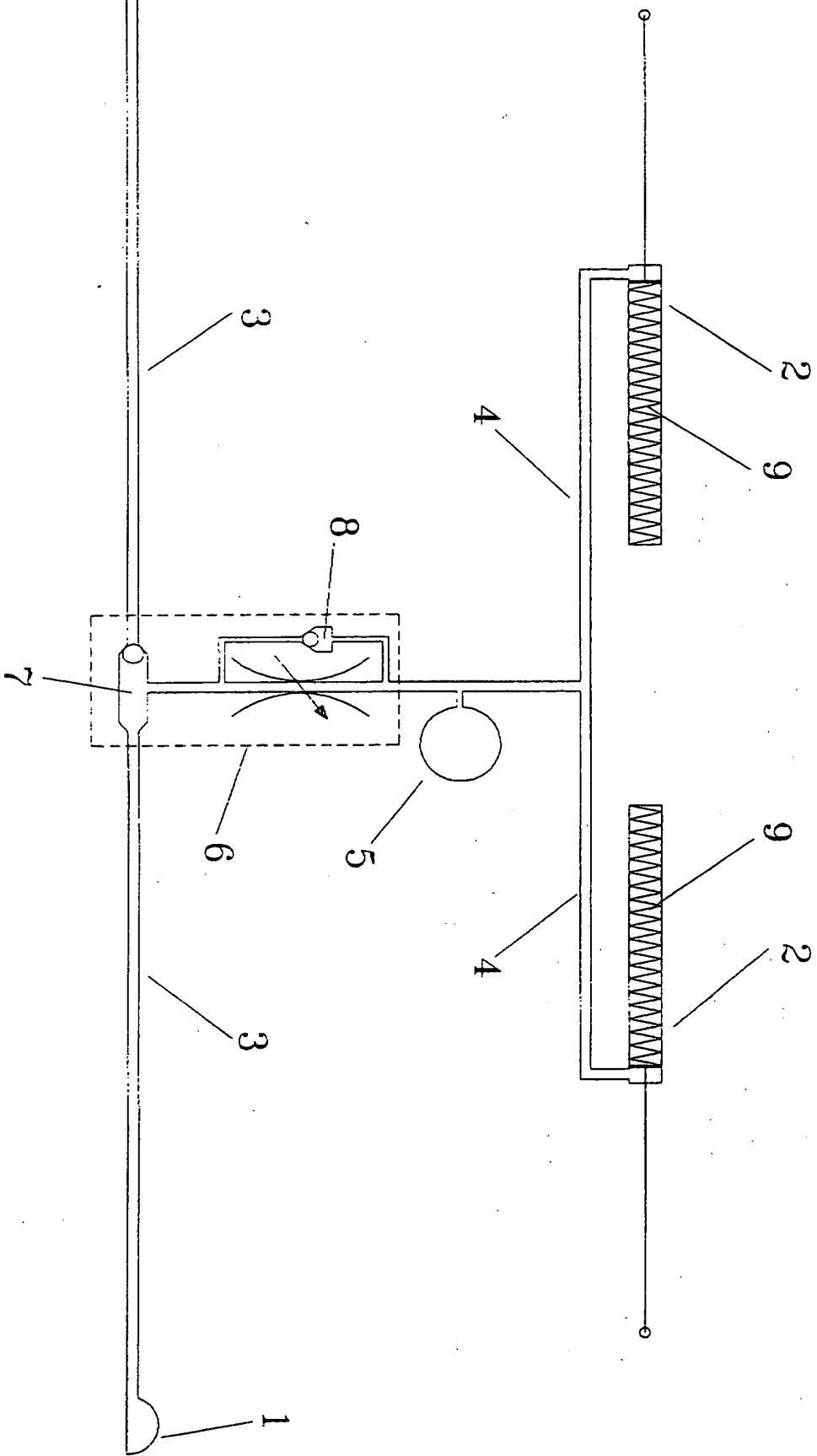


FIG 2

GATE OPENING DEVICE

This invention relates to a device for opening and closing gates or other hinged or sliding machenisems.

There are many devices on the market for the opening and closing of gates and doors, namely electric remote control, Pneumatic , Hydraulic, All of these require an electric power source to operate, and sometimes it is not possible to have this power source to operate the opening and closing device in remote locations, Also there is the need for some kind of portable operating switch namely a remote control button which works of a radio signal or other means and has to be carried by the vehicle using the gates or doors.

This new invention does not require any electric power source, it uses the weight of any vehicle to open the gates or mechanisms, And it dose not require any remote control button in the vehicle.

Acording to the present invention there is provided a flexible enclosed containor (called a bladder) which contains a fluid, and being normally laid flat on the ground, upon compression of this bladder device by a vehicle wheel, fluid contained therin is forced through suitable piping, the pressure exerted on this fluid is used to operate a linear or rotary actuator, this actuator can be used to operate the opening and closing of gates or other machenisims.

A specific embodiment of the invention will now be described by way of an example with reference to the accompanying drawing in which:-

Fig 1 shows the typical layout when used to operate twin entrance gates to a house

Fig 2 shows the schematic circuit used to operate the device.

Referring to the drawing (fig 1) item 1 shows a bladder type device which is filled with a fluid (typically water or oil) and is laid flat on the ground and secured in place in a suitable position by whatever means so as to prevent movement.

When a vehicle drives one of its wheels onto either of item 1 the fluid contained therein is forced along pipes 3 and reaches shuttlevalve 7,(this shuttle valve ensures that the fluid will not travel into the other item 1) The fluid travels through 7 and has unrestricted flow via one way valve 8 into pipes 4 and then into actuator 2, Part of this fluid also travels into storage device 5, The pressure of the fluid then overcomes the force of the spring 9 which normaly keeps the gates closed, then actuator 2 retracts and pulls open the gate

When the gates are fully open the vehicle moves of 1 and proceeds through the gates.

Because some of the fluid collected in storage device 5, this fluid (under pressure) overcomes the force of the spring 9 and keeps the gates open untill the fluid has returned back to items 1 via flowcontrol 6

Flow control 6 is adjustable so is used to control the closing speed of the gates.

Claims

1. One or more flexible containers connected by suitable tubing to an actuator and containing a fluid, upon compression of one or more of these containers by a wheel or any object with a suitable mass the pressure applied on the fluid is used to operate an actuator.
2. A flexible container as claimed in claim 1 where the container can be made from a flexible type material such as rubber or other suitable material.
3. A flexible container as claimed in claim 1 or claim 2 where the flexible type material is constructed in such a way that it forms a enclosed container with one or more connecting points for tubing.
4. A flexible container as claimed in claim 1 where the flexible material is ideally constructed to form a flat type container having as low a profile as possible.
5. A flexible container as claimed in any proceeding claim where the container can be constructed or moulded in a suitable shape and having included in its construction any number of securing or fixing holes so as to secure it to the ground.



Application No: GB 9702428.5
Claims searched: 1-5

Examiner: G WERRETT
Date of search: 21 April 1998

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): E2M.

Int Cl (Ed.6): E05F.

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2173252 A (CHISHOLM) see p. 2, l. 48 & Fig. 4.	1-4.
X	GB 2165582 A (GEC) see p. 2, l. 73 on.	1-4.
X	GB 0530189 (CRAIG)	1-4.
X	WO 94/13916 A1 (BEATTIE) see p. 10, last para., & p13, l. 2 on.	1-4.
X	US 4115954 (LARKIN) see compressible member 49 secured to ramp 52, Fig. 1.	1-3, 5.

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.